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     (FILE 'HOME' ENTERED AT 18:01:05 ON 18 JUL 2005)
     FILE 'CA' ENTERED AT 18:01:32 ON 18 JUL 2005
L1   1508 S (REACTANT OR FEED OR VAPOR)(4A)(PULSE OR PLUG OR PULSESHAPE OR
            SEGMENT)
L2    142 S L1(8A)(DETECT? OR DETERMIN? OR ANALY? OR MEASUR? OR MONITOR? OR
            ESTIMAT? OR EVALUAT? OR SENSE# OR SENSING OR SENSOR OR PROBE# OR
            PROBING OR QUANTITAT? OR QUANTIF? OR ASSESS? OR EXAMIN?)
L3  27798 S (REACTANT OR FEED OR VAPOR)(4A)(USE OR DEPLET? OR EMPTY OR
            DECREAS?)
L4   1209 S L3(8A)(DETECT? OR DETERMIN? OR ANALY? OR MEASUR? OR MONITOR? OR
            ESTIMAT? OR EVALUAT? OR SENSE# OR SENSING OR SENSOR OR PROBE# OR
            PROBING OR QUANTITAT? OR QUANTIF? OR ASSESS? OR EXAMIN?)
L5    134 S L2,L4 AND (CVD OR VAPOR DEPOSIT? OR LAYER DEPOSIT? OR ALD)
L6    124 S L5 NOT PY>2002
L7      4 S L5 NOT L6 AND PATENT/DT
L8    128 S L6-7

=> d bib,ab 1-128 l8
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L8 ANSWER 31 OF 128 CA COPYRIGHT 2005 ACS on STN

AN 130:160934 CA

TI Computer controlled **vapor deposition** processes

IN Lemelson, Jerome

PA USA

SO U.S., 15 pp.

PI US 5871805 A 19990216 US 1996-628088 19960408

PRAI US 1996-628088 19960408

AB A method for computerized control of **vapor deposition** processes, including **CVD** and electron beam phys. **vapor deposition** processes, **uses** optical imaging **sensors** and/or laser interferometers or IR ellipsometers focused on the substrate being coated or on a nearby test blank to provide information which is computer analyzed to yield optimum control points for the coating process. A method is also disclosed for shaping or contouring one or more surfaces of an object(s) using the techniques given here.

L8 ANSWER 52 OF 128 CA COPYRIGHT 2005 ACS on STN

AN 126:109343 CA

TI The adsorption of silane, disilane and trisilane on polycrystalline silicon: a transient kinetic study

AU Weerts, W. L. M.; de Croon, M. H. J. M.; Marin, G. B.

CS Lab. Chem. Technol., Eindhoven Univ. Technol., Eindhoven, 5600 MB, Neth.

SO Surface Science (1996), 367(3), 321-339

AB The adsorption of silane, disilane, and trisilane on polycryst. Si was studied by using temporal **anal.** of products (TAP) following on admission of a **reactant pulse** at 300-1000 K and at pressures typical for low-pressure chem. **vapor deposition**. At ≤ 650 K, a slow adsorption process is operative for the 3 silanes. A quant. description of the adsorption in this temp. range is possible with a mechanism based on an insertion reaction of the silanes into surface H bonds. At > 650 K, a much faster mode of adsorption is obsd., which for the higher silanes is accompanied

by silane formation.. Homogeneous gas-phase reactions can be excluded. Silane adsorption at > 810 K can be described quant. with a dual-site adsorption mechanism.

L8 ANSWER 54 OF 128 CA
AN 125:181818 CA
TI Modeling TiN deposition for control of **CVD**
AU Gevelber, Michael; Can Deniz, M.; Liu, Rujiang; Sumitra, Edward
CS Manufg. Eng., Boston Univ., Boston, MA, 02215, USA
SO Proceedings - Electrochemical Society (1996), 96-5(Chemical Vapor Deposition), 157-162
AB A lumped, nonlinear model was developed for TiN deposition. **Anal.** indicates that **reactant depletion** significantly **dets.** the characteristics of the mass transport regime and has important implications for developing a closed loop control system.

L8 ANSWER 60 OF 128 CA
AN 124:245584 CA
TI Dynamic rate and thickness metrology during poly-Si rapid thermal chemical **vapor deposition** from SiH4 using real time in situ mass spectrometry
AU Tedder, L. L.; Rubloff, G. W.; Cohaghan, B. F.; Parsons, G. N.
CS NFS Engineering Res. Center for Advanced Electronic Materials Processing, North Carolina State Univ., Raleigh, NC, 27695-7920, USA
SO Journal of Vacuum Science & Technology, A: Vacuum, Surfaces, and Films (1996), 14(2), 267-70
AB Real-time in situ mass spectrometry was applied to poly-Si rapid thermal **CVD** (RTCVD) (from SiH4) on thermally grown SiO2 as a way to det. film thickness at the end of the process and to infer dynamic deposition rate during the process for run-to-run and real-time control applications. Monitoring process ambient at 5 torr is achieved using 2-stage differential pumping of a sampling aperture in the exhaust stream, and a rapid response time (~1 s for a ~ 30 s process cycle) allows for real time **sensing** of reactant input, product generation, and **reactant depletion**. Active mass spectrometric sampling of the reaction byproduct (H2 generated by SiH4 decompn.) provides a monitor of the total reaction/deposition rate during poly-Si RTCVD in the range 550-850°. Product generation as a function of temp. is readily distinguished from reactant cracking fragments by spectral anal. A well-defined monotonic correlation between the time-integrated H2+ product signal and the poly-Si film thickness, detd. ex situ by single-point interferometry (Nanometrics), demonstrates that the integrated mass spectrometric signal can provide real-time thickness metrol. The time-dependence of product and reactant signals provides a real-time indication of detailed equipment behavior during the process.

L8 ANSWER 68 OF 128 CA
AN 122:120112 CA
TI Use of residual gas analysis in low pressure semiconductor process reactors
AU Reath, Mark; Brannen, James; Bakeman, Paul; Lebel, Richard
CS IBM Technology Products, Essex Junction, VT, 05452, USA
SO Proceedings - Institute of Environmental Sciences (1993), 39TH(VOL. 1),

119-23
AB Residual gas anal. (RGA) was used for trouble-shooting of TEOS and tungsten **CVD** processes. In each process, RGA identified reactor impurity sources later proven to be the root cause of film defects and foreign material deposition. RGA verified the effectiveness of modified reactor hardware and operating procedures.

L8 ANSWER 113 OF 128 CA COPYRIGHT 2005 ACS on STN
AN 102:88083 CA
TI Vapor growth with monitoring
IN Nisizawa, Junichi; Fukase, Masaaki
PA Semiconductor Research Foundation, Japan
SO U.S., 20 pp. Cont. of U.S. Ser. No. 161,980, abandoned.
PI US 4479845 A 19841030 US 1982-388198 19820614
PRAI JP 1979-151206 A 19791120
AB The app. for vapor growth of Si, and the in situ monitoring device detg. the progress of the growth, are described. The device can also be used to grow Si by epitaxy with desired doping profile. Various portions of the substrate can be used as sampling points as well as diffusion source for supplying dopants.

L8 ANSWER 125 OF 128 CA COPYRIGHT 2005 ACS on STN
AN 71:14506 CA
TI **Vapor deposition** techniques
AU Holzl, Robert A.
CS San Fernando Lab., Pacoima, CA, USA
SO Techniques of Metals Research (1968), 1(Pt. 3), 1377-405
AB A survey of chem. **vapor deposition** practice, including the equipment and methods used and the substances deposited, is given, together with notes on practical applications and the chem. reactions involved. Items covered include the **detn**. of reaction feasibility, the **use** of halide **reactants**, bulb and feed systems, design data, and current practice for the **vapor deposition** by pyrolysis or redn. techniques of metals and other materials. 44 references.

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